WHAT IS CLAIMED IS:

1. A method for receiving a first packet from a source network node comprising the steps of:

generating a data rate control signal based on the signal quality of a received signal transmitted by a source network node;

sending said data rate control signal to the source network node;

receiving a first signal having a data rate based on said data rate control signal from the source network node;

measuring the signal quality of said first signal to form a first signal quality metric; and

sending a first feedback signal based on said first signal quality metric.

2. The method of claim 1 wherein said step of receiving the first signal further comprises decoding a preamble from the first signal indicating that the first signal contains a packet of data addressed to the destination network node.

3. The method of claim 1 wherein said step of receiving the first signal further comprises extracting the first signal from a first time slot of a predetermined number of time slots, wherein the predetermined number of time slots is based the data rate.

4. The method of claim 3 wherein said step of receiving the first signal further comprises determining the predetermined number of time slots based on previous data rate control signals transmitted.

5. The method of claim 1 wherein the first signal is received within a first time slot having a predetermined slot duration, the method further comprising the step of accumulating said first signal into a first set of accumulated packet samples associated with the packet.

6. The method of claim 5 wherein said step of measuring the signal quality of said first signal further comprises attempting to decode the packet from said first set of accumulated packet samples, and wherein said first signal quality metric is based on the results of said step of attempting to decode.

7. The method of claim 6 wherein said first signal quality metric indicates that the packet was successfully decoded in said step of attempting to decode, and wherein said first feedback signal is a Stop-Repeat signal.

8. The method of claim 6 wherein said first signal quality metric indicates that the packet was not successfully decoded in said step of attempting to decode, and wherein said first feedback signal is a Continue-Repeat signal.

9. The method of claim 5 wherein the first signal is received within a first time slot having a predetermined slot duration, the method further comprising the steps of:

accumulating said first signal into a first set of accumulated packet samples associated with the packet;

receiving a second signal within a second time slot having said predetermined slot duration;

accumulating said second signal into said first set of accumulated packet samples associated with the packet;

measuring the signal quality of said first signal and said second signal to form a second signal quality metric; and

sending a second feedback signal based on said second signal quality metric.

10. The method of claim 9 wherein the elapsed time between the end of said first time slot and the beginning of said second time slot has a predetermined duration equal to a multiple of said predetermined slot duration.

11. The method of claim 10 wherein the multiple is two.

12. The method of claim 10 wherein the multiple is three.

13. The method of claim 10 wherein the multiple is four.

14. The method of claim 1 wherein said step of generating a quality metric comprises measuring the carrier-to-interference (C/I) ratio of the received signal.

15. The method of claim 14 wherein said data rate control signal specifies one requested data rate of a predetermined set of data rates, and wherein said data rate is equal to said one requested data rate.

Subs A6

16. The method of claim 1 wherein said step of measuring the signal quality of said first signal comprises attempting to decode the packet from said first set of accumulated samples.

17. The method of claim 1 wherein said step of measuring the signal quality of said first signal comprises measuring the carrier-to-interference ratio of one or more received pilot burst signals.

18. The method of claim 1 wherein said feedback signal is a Stop-Repeat signal, the method further comprising the step of decoding the packet from said first set of accumulated packet samples.

19. The method of claim 1 wherein said feedback signal is a Continue-Repeat signal, the method further comprising the steps of:

accumulating a second signal into said first set of accumulated packet samples associated with the packet;

measuring the signal quality of said second signal to generate a second signal quality metric;

generating a decoding prediction metric based on said first signal quality metric and said second signal quality metric;

comparing said decoding prediction metric with a decoder prediction threshold; and

sending a feedback signal based on said step of comparing.

20. The method of claim 1 wherein said step of sending a feedback signal further comprises the sub-steps of:

covering the symbols of a Stop-Repeat signal with a first Walsh code to generate a Walsh-covered Stop-Repeat signal; and

transmitting said Walsh-covered Stop-Repeat signal concurrently with one or more additional signals covered with a second Walsh code, wherein said second Walsh code is orthogonal to said first Walsh code.

21. The method of claim 1 wherein said step of sending a feedback signal further comprises the sub-steps of:

covering the symbols of a Continue-Repeat signal with a first Walsh code to generate a Walsh-covered Stop-Repeat signal; and

transmitting said Walsh-covered Stop-Repeat signal concurrently with one or more additional signals covered with a second Walsh code, wherein said second Walsh code is orthogonal to said first Walsh code.

22. A method for sending a first data packet from a source network node to a destination network node, the method comprising the steps of:

receiving a data rate control signal from the destination network node;

determining a number of copies of the first data packet to send to the destination network node based on said data rate control signal;

encoding a first copy of the first data packet into a first signal;

sending said first signal to the destination network node;

receiving a Stop-Repeat signal from the destination network node; and

sending fewer than said number of copies to the destination network node based on said Stop-Repeat signal.

23. The method of claim 22 wherein said step of sending the first signal further comprises encoding a preamble into the first signal indicating that the first signal contains a packet of data addressed to the destination network node.

24. The method of claim 22 further comprising the steps of:

encoding a second copy of the first data packet into a second signal; and

sending said second signal to the destination network node before said step of receiving a Stop-Repeat signal.

25. The method of claim 24 wherein the first signal is transmitted within a first time slot having a predetermined slot duration, and wherein the second signal is transmitted within a second time slot having said predetermined slot duration, an wherein the elapsed time between the end of said first time slot and the beginning of said second time slot has a predetermined duration equal to a multiple of said predetermined slot duration.

26. The method of claim 25 wherein the multiple is two.

27. The method of claim 25 wherein the multiple is three.

28. The method of claim 25 wherein the multiple is four.

29. The method of claim 24 further comprising the steps of:

encoding a first copy of a second data packet into a third signal; and

sending said third signal to the destination network node, wherein the third signal is transmitted within a third time slot having said predetermined slot duration, and wherein said third time slot is disposed between said first time slot and said second time slot.

30. The method of claim 29 wherein the third time slot begins immediately after the first time slot ends, and wherein the second time slot begins immediately after the third time slot ends.

31. The method of claim 22 wherein said data rate control signal specifies one requested data rate of a predetermined set of data rates, wherein each data rate within said predetermined set of data rates is associated with a predetermined number of time slots, and wherein said number of copies is equal to the predetermined number of time slots associated with the requested data rate.

32. The method of claim 22 wherein said step of receiving a Stop-Repeat signal further comprises the sub-steps of:

decovering the symbols of the Stop-Repeat signal with a first Walsh code; and

decovering the symbols of a data signal with a second Walsh code, wherein said second Walsh code is orthogonal to said first Walsh code, and wherein said data signal is received from the destination network node.

33. The method of claim 22 wherein said step of sending said first signal further comprises sending one or more pilot burst signals.

34. A method for sending a data packet from a source network node to a destination network node, the method comprising the steps of:

receiving a data rate control signal from the destination network node;

determining a number of copies of the data packet to send to the destination network node based on said data rate control signal;

sending a first signal containing a copy of the data packet to the destination network node;

receiving a Continue-Repeat signal from the destination network node; and

sending greater than said number of copies to the destination network node based on said Continue-Repeat signal.

35. The method of claim 34 wherein said step of sending the first signal further comprises encoding a preamble into the first signal indicating that the first signal contains a packet of data addressed to the destination network node.

36. The method of claim 34 further comprising the steps of:
encoding a second copy of the first data packet into a second signal; and
sending said second signal to the destination network node before said step of receiving a Continue-Repeat signal.

37. The method of claim 36 wherein the first signal is transmitted within a first time slot having a predetermined slot duration, and wherein the second signal is transmitted within a second time slot having said predetermined slot duration, an wherein the elapsed time between the end of said first time slot and the beginning of said second time slot has a predetermined duration equal to a multiple of said predetermined slot duration.

38. The method of claim 37 wherein the multiple is two.

39. The method of claim 37 wherein the multiple is three.

40. The method of claim 37 wherein the multiple is four.

41. The method of claim 36 further comprising the steps of:
encoding a first copy of a second data packet into a third signal; and
sending said third signal to the destination network node, wherein the third signal is transmitted within a third time slot having said predetermined slot duration, and wherein said third time slot is disposed between said first time slot and said second time slot.

42. The method of claim 41 wherein the third time slot begins immediately after the first time slot ends, and wherein the second time slot begins immediately after the third time slot ends.

43. The method of claim 34 wherein said data rate control signal specifies one requested data rate of a predetermined set of data rates, wherein each data rate within said predetermined set of data rates is associated with a predetermined number of time slots, and wherein said number of copies is equal to the predetermined number of time slots associated with the requested data rate.

44. The method of claim 34 wherein said step of receiving a Continue-Repeat signal further comprises the sub-steps of:

decovering the symbols of the Continue-Repeat signal with a first Walsh code; and

decovering the symbols of a data signal with a second Walsh code, wherein said second Walsh code is orthogonal to said first Walsh code, and wherein said data signal is received from the destination network node.

45. The method of claim 34 wherein said step of sending said first signal further comprises sending one or more pilot burst signals.

46. A network node apparatus for receiving a first packet from a source network node comprising:

a demodulator for demodulating a downconverted sampled signal to produce a stream of demodulated samples;

a first accumulation buffer for accumulating a first subset of said demodulated samples associated with the first packet;

a decoder for decoding the contents of said first accumulation buffer to decode the data of the first packet;

a feedback signal generator for generating a feedback signal sent to the source network node based on a feedback control signal;

a control processor for controlling the subset of the stream of demodulated samples accumulated in said first accumulation buffer and for generating the feedback control signal based on the signal quality of the downconverted sampled signal; and

a transmitter for transmitting the feedback signal to the source network node.

47. The apparatus of claim 46 further comprising a preamble detector for detecting and decoding a preamble received within the stream of demodulated samples.

48. The apparatus of claim 46 further comprising a signal quality processor for generating a received signal quality signal based on the received signal quality of the downconverted sampled signal and providing the received signal quality signal to said control processor.

49. The apparatus of claim 48 further comprising a data rate control encoder for encoding a data rate control signal sent to the source network node based on the received signal quality signal.

50. The apparatus of claim 49 further comprising a first Walsh encoder for covering the data rate control signal with a first Walsh code.

51. The apparatus of claim 50 further comprising a second Walsh encoder for covering the feedback signal with a second Walsh code that is orthogonal to said first Walsh code.

52. The apparatus of claim 46 wherein said feedback signal generator is configured to generate a Stop-Repeat signal to the source network node based on the feedback control signal.

53. The apparatus of claim 46 wherein said feedback signal generator is configured to generate a Continue-Repeat signal to the source network node based on a control signal from said control processor.

54. The apparatus of claim 46 wherein said control processor is configured to generate the feedback control signal based on the signal quality of one or more pilot burst signals received concurrently with the first subset of said demodulated samples.

55. The apparatus of claim 46 wherein said control processor is configured to generate the feedback control signal based on the successful decoding of the first packet in said decoder.

56. The apparatus of claim 46 further comprising a second accumulation buffer, for accumulating a second subset of said demodulated samples associated with a second packet, wherein portions of the second subset are disposed between portions of the first subset.

57. A network node apparatus for sending a first data packet to a destination network node comprising:

a data queue for storing a plurality of data packets addressed to a plurality of network nodes, wherein the destination network node is one of the plurality of network nodes;

a demodulator for decoding data rate control signals and feedback signals received from the destination network node;

a scheduler for selecting a number of time slots for sending the first data packet, wherein the number of time slots is based on a data rate; and

a control processor for selecting the data rate based on the data rate control signals and for changing the number of time slots based on the feedback signals.

Subs C6

58. The apparatus of claim 57 further comprising a modulator for modulating the data from the first packet and puncturing a preamble into the data of the first packet.

59. The apparatus of claim 57 wherein said control processor is configured to decrease the number of time slots used to transmit the first packet based on the decoding of a Stop-Repeat signal in said demodulator.

60. The apparatus of claim 57 wherein said control processor is configured to increase the number of time slots used to transmit the first packet based on the decoding of a Continue-Repeat signal in said demodulator.

61. The apparatus of claim 57 wherein said demodulator further comprises a first Walsh despreader for decovering the data rate control signals using a first Walsh code.

62. The apparatus of claim 58 wherein said demodulator further comprises a second Walsh despreader for decovering the feedback signals using a second Walsh code, wherein said first Walsh code is orthogonal to said second Walsh code.

63. A network node apparatus for receiving a first packet from a source network node comprising:

means for generating a data rate control signal based on the signal quality of a received signal transmitted by a source network node;

means for sending the data rate control signal to the source network node;

means for receiving a first signal having a data rate based on said data rate control signal from the source network node;

means for measuring the signal quality of said first signal to form a first signal quality metric; and

means for sending a first feedback signal based on said first signal quality metric.

64. A network node apparatus for sending a first data packet to a destination network node comprising:

means for receiving a data rate control signal from the destination network node;

means for determining an initial number of copies of the data packet to send to the destination network node based on said data rate control signal;

means for sending a first signal containing a copy of the data packet to the destination network node;

means for receiving a feedback signal from the destination network node; and

means for sending a different number of copies of the data packet than the initial number of copies of the data packet to the destination network node based on the feedback signal.